**Project-based Learning**

A systematic teaching method that engages students in learning essential knowledge and life-enhancing skills through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and tasks. Students investigate a problem and apply it to a real-life situation using technology. They pose challenging questions or problems. The students engage in design, problem solving, decision making, and investigative activities. It allows students to work in groups or by themselves and allows them to come up with ideas and realistic solutions or presentations.

Project-based learning (PBL) provides complex tasks based on challenging questions or problems that involve the students' problem solving, decision making, investigative skills, and reflection that include teacher facilitation, but not direction. PBL is focused on questions that drive students to encounter the central concepts and principles of a subject hands-on.

With PBL students learn from these experiences and take them into account and apply them to their lives in the real world. The students have to think in original ways to come up with the solutions to these real world problems. It helps with their creative thinking skills by showing that there are many ways to solve a problem.

If the project does not remain on task and content driven the student will not be successful in learning the material.

Teachers must create a classroom environment which stresses learning and exploration over correct answers, grades, and competition with others.

**Features**

* A well-designed project provokes students to encounter (and struggle with) the central concepts and principles of a discipline.
* Emphasises learning activities that are long-term (3 weeks or more), interdisciplinary and student-centered.
* Allows in-depth investigation fostering deep knowledge and understanding.
* Students collaborate, working together to make sense of what is going on and taking responsibility for their own learning.
* The student’s role is to ask questions, build knowledge, and determine a real-world solution to the issue/question presented.
* May include jigsaw learning. Learners working in groups are given a specific piece of a problem to work on. They become experts in that part of the problem. Other groups are working on other parts of the puzzle and becoming experts themselves. Finally groups collaborate to provide a 'total view and solution'.
* The teacher must regulate student success with intermittent, transitional goals to ensure student projects remain focused and students have a deep understanding of the concepts being investigated. It is important for teachers not to provide the students with any answers because it defeats the learning and investigating process.
* An atmosphere of shared responsibility with the teacher as facilitator is essential.
* A probing open-ended question or issue that is rich, real and relevant to the students’ lives is the first step. Students have to find answers to questions and combine them using critically thinking skills to come up with answers.
* Real world use of technology - students is expected to use technology in meaningful ways to help them investigate, collaborate, analyze, synthesise and present their learning.
* Student voice must be heard!
* Multi-disciplinary
* Outcomes-based, with an artifact, presentation, or action as a result of the inquiry.
* Constructive feedback by teacher and peers.

**Questions**

1. **Significance:** Why is it important?
2. **Perspective:** What is the point of view?
3. **Evidence:** How do you know?
4. **Connection:** How does it apply?
5. **Supposition:** What if it were different?

**Steps**

1. **Define:** Projects start with sound instructional goals, a specific timeline, an audience identified and the formulation of an engaging question or problem
2. **Plan:** project broken down into meaningful chunks and stages.
3. **Do:** Investigate, test, design and produce. More questions are introduced to guide the investigation. Students reexamine the problem (collectively) in light of what they have discovered during their research.  During this discussion, students supply information for the following categories:
4. **Data:** students write down what they already know about the problem
5. **Ideas:** students list possible solutions to the problem
6. **Learning Issues:** students examine what deficiencies they have in their learning (what do they know? what do they still need to find out?)
7. **Action:** students make suggestions as to how they might proceed.
8. **Review:** The project ends with evaluation, reflection and supposition.
9. **Abstraction:** Students regroup to place the problem within the context of similar problems that they have encountered in the course of their study.  Students attempt to link the problem with similar ones, attempting to find similarities, differences, and ways that knowledge of the old problem might help to solve the new one.

**Technology**

"Technology can extend and enhance what students are able to produce, whether the task at hand is writing a report or graphing dates.  The selection and manipulation of appropriate tools for such purposes also appears to stimulate problem solving, and other thinking skills" (Means and Ohlsen, 1994).

* Enhances student interest by exposing students to sources of information that they deem as more "authentic"
* Opens the classroom up to previously unreachable types of up-to-date information
* Allows students to present their findings in a number of different ways
* Provides fast and effective ways of diagnosing and correcting errors
* Helps to manage the production of complex projects and artifacts.

**Advantages**

* Encourages students to become independent workers, creative and critical thinkers, and lifelong learners.
* Facilitates social responsibility.
* Students participate in activities that force them to learn relevant concepts and ideas in a meaningful manner.
* It is cumulative - all new skills, information, and concepts build upon the foundation of what the student already knows.
* It is goal-oriented - students are generally more successful when they are cognizant of the goal towards which they are working.
* It is diagnostic - students further the learning process by engaging in frequent self-evaluation and self-monitoring; such practices aid the students' comprehension and help to ensure that they are continue actively to pursue their goals.
* It is reflective.

**Links**

<http://www.genyes.org/> - a highly successful PBL program

<http://www.projectfoundry.org/pblHQ.html>

<http://www.thinkquest.org/en/projects/index.html>

<http://www.edutopia.org/tech-integration>

<http://pbl-online.org/>

<http://www.novelapproachpbl.com/21stCenturySkills.htm>

<http://www.2learn.ca/Projects/Together/KWORDS/projecta.html>

<http://www.bobpearlman.org/BestPractices/ProjectWorkSingapore.htm>

<http://pblmm.k12.ca.us/>

Google Docs, <https://www.google.com/accounts/ServiceLogin?service=writely&passive=true&nui=1&continue=http%3A%2F%2Fdocs.google.com%2F&followup=http%3A%2F%2Fdocs.google.com%2F&ltmpl=homepage&rm=false> – share ideas and documents